



LISTING OF CLAIMS


 Claim 1 (Currently Amended): Digital transmission method ~~of the~~ with error-correcting coding ~~type~~, comprising, before a step of transmitting on a channel, a coding procedure for generating, from a source information item, a coded information item comprising at least one redundant information item and, after the ~~said~~ step of transmitting on the ~~said~~ channel, a decoding procedure for obtaining, from a received information item to be decoded (~~50~~), an estimate of the ~~said~~ source information item with correction of transmission errors based on the ~~said~~ at least one redundant information item, the ~~said~~ coding procedure comprising a plurality of elementary coding steps associated with a plurality of interleaving steps ~~and acting~~ performed in parallel or in series, the ~~said~~ decoding procedure being iterative and comprising, for each iteration, a plurality of elementary decoding steps (~~51, 52, 53, 83~~) which correspond to the said plurality of elementary coding steps ~~with association that are associated~~ with a plurality of adapted interleaving and de-interleaving steps, each of the ~~said~~ elementary decoding steps (~~51, 52, 53, 83~~) generating at least one weighted output information item ~~which can be that is~~ transmitted to one or more other elementary decoding steps, the ~~said~~ method ~~being characterised in that it comprises~~ further comprising a characteristic quantity determination step (~~54, 86~~) for calculating at least one characteristic quantity from a set of the weighted output information items generated ~~by in~~ at least one of the elementary decoding step (~~51, 52, 53, 83~~) steps, and a decoded information quality parameter determination step (~~55, 85~~) for determining, from the ~~said~~ at least one characteristic quantity and at least one configuration parameter, a decoded information quality parameter associated with a set of decoded information items corresponding to the

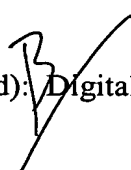


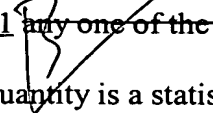

said set of weighted output information items.


Claim 2 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to claim 1, ~~characterised in that~~ wherein the said decoded information quality parameter is used after the ~~said~~ decoding procedure.


Claim 3 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to claim 1, ~~characterised in that~~ wherein the said decoded information quality parameter is used during the ~~said~~ decoding procedure.


Claim 4 (Currently Amended): Digital transmission method ~~of the error-correcting coding type according to~~ as in any one of the preceding claims, ~~characterised in that~~ wherein each of the ~~said~~ elementary decoding steps uses part of the ~~said~~ received information, which corresponds to a redundant information item associated with the corresponding elementary coding step, for generating an output information item comprising an extrinsic information item ~~which can be~~ transmitted to one or more other elementary decoding steps, at least one extrinsic information item obtained during one iteration being transmitted to another iteration, and the ~~said~~ characteristic quantity determination step (86) includes calculating the ~~said~~ at least one characteristic quantity during an elementary decoding step (83) from a set of extrinsic information items at the output of the said elementary decoding step (83).


Claim 5 (Currently Amended): Digital transmission method ~~of the error-correcting~~


coding type according to Claim 1 ~~any one of the preceding claims, characterised in that~~
wherein the said characteristic quantity is a statistical quantity.


Claim 6 (Currently Amended): Digital transmission method ~~of the error-correcting~~
~~coding type~~ according to claim 4, ~~characterised in that~~ wherein the said characteristic
quantity is ~~the~~ a mean of ~~the~~ an absolute value of the extrinsic information calculated ~~on~~ from
the said set of extrinsic information items.


Claim 7 (Currently Amended): Digital transmission method ~~of the error-correcting~~
~~coding type~~ according to claim 4, ~~characterised in that~~ wherein the said characteristic
quantity is a statistical quantity characterising the said set of extrinsic information items.

Claim 8 (Currently Amended): Digital transmission method ~~of the error-correcting~~
~~coding type~~ according to Claim 1 ~~any one of the preceding claims, characterised in that~~
wherein the said decoded information quality parameter determination step (55) determines
the said decoded information quality parameter from a characteristic quantity calculated, ~~by~~
in the said characteristic quantity determination step (54, 86) during an elementary decoding
step (53) from a set of weighted output information items of the said elementary decoding
step (53) and other characteristic quantities calculated during previous elementary decoding
steps (51, 52) from sets of weighted output information items corresponding to the said set of
weighted output information items of the said elementary decoding step (53), and at least one
configuration parameter, the said decoded information quality parameter being associated

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with a set of decoded information items corresponding to the said set of weighted output information items of the said elementary decoding step (53).

Claim 9 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to claim 8, ~~characterised in that~~ wherein the said decoded information quality parameter determination step (55) determines the said decoded information quality parameter from characteristic quantities calculated during an elementary decoding ~~steps~~ step corresponding to the last elementary decoding ~~steps (51, 52, 53)~~ step in the said decoding procedure.

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Claim 10 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to claim 8, ~~characterised in that~~ wherein the said decoded information quality parameter determination step (55) determines the said decoded information quality parameter from a single characteristic quantity calculated during the last elementary decoding step (53) in the said decoding procedure.

Claim 11 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to Claim 1 ~~any one of the preceding claims~~, ~~characterised in that~~ wherein the ~~said output~~ decoded information quality parameter is an integer number representing the probable number of errors which exist in the ~~said~~ set of decoded information items.

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Claim 12 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to Claim 1 ~~any one of the preceding claims~~, characterised in that wherein the ~~said output~~ decoded information quality parameter is a scalar used as a weighting factor.

Claim 13 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to Claim 1 ~~any one of the preceding claims~~, characterised in that a wherein the configuration parameter is a parameter characterising the decoding conditions.

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Claim 14 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to Claim 1 ~~any one of the preceding claims~~, characterised in that a wherein the configuration parameter is a parameter characterising the transmission conditions.

Claim 15 (Currently Amended): Digital transmission method of the error-correcting coding type according to Claim 1 ~~any one of the preceding claims~~, characterised in that a wherein the configuration parameter is ~~the~~ a signal to noise ratio.

Claim 16 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to Claim 1 ~~any one of the preceding claims~~, characterised in that wherein the ~~said~~ decoded information quality parameter determination step ~~(55, 85)~~ uses a predetermined algorithm allowing calculation of the ~~said~~ decoded information quality

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parameter as a function of the ~~said~~ configuration parameters and one of more of the ~~said~~ characteristic quantities.

Claim 17 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to Claim 1 ~~any one of the preceding claims~~, characterised in that wherein the ~~said~~ decoded information quality parameter determination step (55; 85) uses a predetermined reference table to select ~~an~~ a decoded information quality parameter as a function of the ~~said~~ configuration parameters and one of more of the said characteristic quantities.

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Claim 18 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to Claim 1 ~~any one of the preceding claims~~, characterised in that, wherein the ~~said~~ received information item (50) ~~being is~~ processed by means of N-bit decoding sequences, ~~the said to provide a set of decoded information items is as~~ a sequence of binary information items containing N symbols.

Claim 19 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to Claim 1 ~~any one of the preceding claims~~, characterised in that, wherein the ~~said~~ received information item (50) ~~being is~~ processed by means of decoding sequences, ~~the said to provide a set of decoded information items is as~~ a sequence of binary information items representing a fraction of a decoding sequence.

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Claim 20 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to Claim 1 ~~any one of the preceding claims~~, characterised in that wherein the ~~said~~ elementary decoding steps (51, 52, 53, 86) have inputs and outputs weighted in terms of probabilities, likelihood ratios, or log likelihood ratios.


Claim 21 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to Claim 1 ~~any one of the preceding claims~~, characterised in that wherein the ~~said~~ coding procedure comprises at least one puncturing step and the ~~said~~ decoding procedure comprises at least one corresponding de-puncturing step.

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Claim 22 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to Claim 1 ~~any one of the preceding claims~~, characterised in that, wherein in a combination of transmission methods using a number of decoding procedures (63) associated with ~~one and~~ the same coding procedure (60), decoded information quality parameters obtained respectively at the end of each of the decoding procedures form weighting factors for the corresponding sets of decoded information items ~~with a view~~ used to form a weighted combination (64) of ~~these~~ the sets.

Claim 23 (Currently Amended): Digital transmission method ~~of the error-correcting coding type~~ according to Claim 1 ~~any one of the preceding claims~~, characterised in that, wherein in a transmission method further comprising, ~~furthermore~~, a joint detection step (70), the ~~said~~ decoded information quality parameter is used as a control parameter of the ~~said~~ joint

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 detection step ~~(70)~~.
